

## 2022 ARCADIA □

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**Packet 1:** I just kinda forgot ARCADIA questions exist

Tossups

1. **Examples of these structures in the British Isles called “Troy Towns” may have been built with apotropaic intentions. Pliny the Elder alleged that a subterranean one of these structures existed in Lars Porsena’s tomb. A type of Roman floor mosaic depicting these structures is unusually common in North African bath houses. Herodotus mistook the ruins of Amenemhat III’s (“the third’s”) Mortuary Temple for one of these structures. The classical seven circuit, unicursal design of these structures appears on the back of one civilization’s (\*) coins. The architectural complexity of the palace of Knossos led Sir Arthur Evans to associate the site with one of these structures. Daedalus legendarily constructed one of these structures for King Minos. For 10 points, name these structures that often included a minotaur at their center.**

ANSWER: labyrinths [accept mazes; accept turf labyrinths]

<KT, Other History: Ancient>

2. **It’s not time, but Arthur Prior used the letter “U” to designate relations between these things in a logic that he developed with Carew Meredith. In the book *Inquiry*, Robert Stalnaker defends a framework of intentional model states that defines propositions as functions from these entities to truth values. Alvin Plantinga backed an abstractionist conception of these entities by arguing for their basis in states of affairs. Comparative similarities between these things are established in counterfactual theories of causation. The (\*) ersatz view of these entities is criticized in a David Lewis work that argues for their realism and is titled for their plurality. These entities are invoked to provide a semantics for modal logic. For 10 points, Gottfried Leibniz argued that we live in the “best of all possible” type of what entities?**

ANSWER: possible worlds [accept *On the Plurality of Worlds*; prompt on possibilities]

<JA, Philosophy>

3. **As part of a dance from this country, a woman drops her handkerchief and her partner must pick it up using only his teeth. “On the Telephone” is considered the first song recorded for a dance style from this country. A step-ball-change with bent knees and feet planted on the floor is characteristic of the solo “no pé” (“noo PEH”) style of a dance from this country accompanied by percussion like the *surdo*. The *lundu* and *de roda* (“jee HO-dah”) dance styles are derived from rhythms that (\*) African slaves brought to this country. A dance from this country, the *maxixe* (“mah-SHEE-shee”), is often danced to *choro* (“SHOW-roo”) music. A dance from this country was popularized by Carmen Miranda, and that dance’s music was combined with jazz to make this country’s bossa nova style. For 10 points, name this country that features a samba parade during its Rio Carnival.**

ANSWER: Brazil [or Federative Republic of Brazil or República Federativa do Brasil]

<AS, Other Arts: Auditory>

4. **Philip Anderson proposed a model named for this quantity that utilizes a triangular lattice and is one potential model for high temperature superconductivity. In one phenomenon present in Tomonaga–Luttinger liquids, this property is separated from charge, creating three independent quasiparticles. Operators projecting this property in the *x*, *y* and *z* directions can be found by multiplying *h*-bar over 2 by the corresponding (\*) Pauli matrix. Particles are separated based on this property in Stern–Gerlach experiments. An**

eponymous theorem uses relativity to differentiate between fermionic and bosonic statistics based on this property. For 10 points, name this intrinsic form of angular momentum that for fermions like the electron, is half-integer.

ANSWER: spin [accept intrinsic angular momentum until read; accept quantum spin liquids or spin-charge separation; accept spin-statistics theorem; prompt on angular momentum]

<JF, Physics>

5. At the end of a short story set in this city, a boy offers to cook dinner for his father before he is beaten with a walking stick for letting the kitchen fire go out. A character stops at a refreshment bar in this city to contemplate his wish for “some good simple-minded girl” before meeting a friend who gives him a gold coin. After drinking with an old friend who works for the press in this city, Annie’s eyes and her crying baby both irritate (\*) Little Chandler. In a toast given in this city, the speaker compares his hosts to the Three Graces after Bartell D’Arcy sings “The Lass of Aughrim.” The protagonist of a story has an awkward encounter with Miss Ivors at a holiday party hosted by Miss Kate and Miss Julia in this city home to Gabriel Conroy. For 10 points, name this city that titles a short story collection that includes “A Little Cloud” and “The Dead,” written by James Joyce.

ANSWER: Dublin [accept Dubliners]

<CM, British Literature>

6. A shroud-devouring creature of this type will take the form of a pig if an individual’s name is not removed from their shirt. Humans and dogs born on a Saturday can detect the presence of *vrykolakas* (“vree-KO-lah-kahss”), which are most commonly conflated with these creatures. A type of this creature that terrorized a water mill was named Sava Savanović (“sah-VAH-no-vich”). A padlock on the toe and a sickle across the neck supposedly prevent the creation of these creatures. Accounts of these creatures were investigated by (\*) Gerard van Swieten on the orders of Maria Theresa. Romanian *strigoi* are considered to be these creatures. Spilled grains can be used to distract these creatures, who must be invited in to enter a house. For 10 points, holy water and garlic can ward off what undead blood-suckers?

ANSWER: vampires [accept revenants; accept vrykolakas until read; accept strigoi until read; accept nachzehrer; accept nosferatu or moroi; prompt on spirits or ghosts until “spirits” is read; prompt on demons or witches] (The creature in the first line is the *nachzehrer*.)

<EG, Beliefs>

7. The last step of one of this molecule’s degradation pathways involves a scavenger DCP enzyme that causes a recessive intellectual disability when mutated. PARN and the CCR4-NOT (“C-C-R-four-not”) complex catalyze the rate-determining step of this molecule’s degradation. One assay of this molecule’s stability involves lysing cells at 0, 2, 4, and 8 hours post-actinomycin D treatment. Members of *Hanta-viridae* and *Ortho-myxo-viridae* (\*) “snatch” a part of human molecules of this type to stabilize their own. These molecules localize to P-bodies, where they can be processed by enzymes like Argonaute and Dicer in an “interference” process. Addition of a 5’ (“five-prime”) cap and a poly-A tail protects this molecule from degradation. For 10 points, name this uracil-containing nucleic acid that is transcribed from DNA and translated to produce protein.

ANSWER: mRNA [or messenger ribonucleic acid; prompt on RNA or ribonucleic acid; prompt on 5’ cap by asking, “What larger molecules contain 5’ caps?”; reject other kinds of RNA like “tRNA” or “rRNA”]

<JE, Biology>

8. Description acceptable. Victorious military elites during this campaign formed a mixed ethnic group that took its name from the word for “shooter” in Arabic. This campaign marked the endpoint of the period chronicled in the *Tārīkh al-Fattāsh*. Much of the manpower for this campaign came from captives taken from the Battle of Alcácer Quibir (“ahl-KAH-sair kee-BEER”). A blue-eyed Spanish eunuch carried out this campaign under the orders of Ahmad al-Mansūr, during which he destroyed the salt mines of (\*) Tāghaza. Arquebusiers (“AR-kwib-bus-eers”) turned back a cattle stampede during a decisive battle in this campaign. Judar

Pasha, a Sa'dian general, won the 1591 Battle of Tondibi during this campaign and subsequently sacked Djenné (“jen-NAY”), Gao, and Timbuktu. For 10 points, name this military campaign during which Morocco conquered a Sahelian empire.

ANSWER: invasion of the Songhai Empire [or Moroccan war against the Songhai; accept descriptions like defeat of the Songhai Empire or fall of the Songhai Empire] (The Moroccan elites formed the Arma ethnic group.)  
<AS, World History>

9. The narrator of a book about this activity claims that “all modern American literature comes from...*Huckleberry Finn*.” In a story about this activity, a man quotes Shakespeare’s line that “a man can die but once” to a woman who later repeatedly insists to him, “stop it,” while he goads her by asking why she didn’t use poison. An excursion for this activity that an author took with Pauline Pfeiffer is recounted in a memoir titled for a certain place’s (\*) “Green Hills.” The protagonist of a short story “comes of age” during this activity with the help of Robert Wilson; at the end of that story, the title character’s wife Margot kills him as a buffalo charges at him. For 10 points, the title character of Hemingway’s story “The Short Happy Life of Francis Macomber” engages in what activity during a big-game safari?

ANSWER: big-game hunting [accept safari until read]  
<HG, American Literature>

10. In an ad for Steinway’s Spirio, Yuja Wang plays a stunningly clear transcription of this composer’s song “The Smuggler.” This composer began his last piece with a “spirit” theme that he thought angels revealed to him, but he unknowingly transposed that theme from his D-minor violin concerto. A coda that quotes *An die ferne geliebte* (“on dee FAIR-nuh guh-LEEP-tuh”) follows a mysterious *Im Legenden-ton* (“eem lay-GHEN-den tone”) section in a musical love letter that this composer once titled *Ruins*, which opens his *Fantasie in C*. Permutations of the cipher “E-flat, C, B, A” unify the movements of a solo piece by this composer that depicts (\*) *commedia dell’arte* characters. This composer’s work on his *Ghost Variations* was interrupted by a suicide attempt in the Rhine. This composer reflected himself in the alter egos Eusebius and Florestan, who appear in his *Carnaval*. For 10 points, name this tortured composer who married Clara Wieck (“VEEK”).

ANSWER: Robert Schumann [or Robert Alexander Schumann; prompt on Schumann]  
<VD, Auditory Arts>

11. In a technique dating back to Egypt’s Fifth Dynasty, practitioners of this profession rely on stacked horizontal tubes made of dried mud. A rule of thumb in this profession called the 70% rule dictates when to install a box called a super to expand storage space and reduce congestion. A device central to this profession was designed by L. L. Langstroth to minimize propolis creation. In this profession, frames must be uncapped and placed in a device that extracts their contents using (\*) centrifugal force. The most common parasite that can cause product loss in this profession is the waxworm. People who engage in this practice use a smoker to mask alarm pheromones, allowing easier extraction of combs. For 10 points, name this practice in which hive insects are reared to harvest their excess honey.

ANSWER: beekeeping [or apiculture]  
<EG, Other Academic>

12. Charles V (“the fifth”) stripped a member of this family from his highest title after chancellor Girolamo Morone revealed a plot to appoint the Marquis of Pescara as king of Naples. Philip II (“the second”) owed, and never repaid, the Neapolitan sums to a Polish queen of this family. A member of this family was engaged in the Château de Loches (“loash”) following the Battle of Novara, part of a lengthy set of conflicts whose start Niccolò Machiavelli blamed on that member of this family inviting (\*) Charles VIII (“the eighth”) to invade Naples. A member of this family betrayed and usurped the Golden Ambrosian Republic. Leonardo’s *The Last Supper* was commissioned by a member of this family responsible for the assassination of Gian Galeazzo

("jahn gah-lay-AHT-so"). For 10 points, name this late 15th-century house that ruled Milan after the House of Visconti.

ANSWER: House of Sforza [accept Ludovico Sforza; accept Francesco Sforza; accept Bona Sforza]  
<GP, European History>

13. After remembering Bebra's advice, one man under a grandstand uses this object to disrupt a parade led by Lobsack. After warming his hands at a burning synagogue, a man runs to Markus's shop in an attempt to obtain more objects like this object before they are destroyed. A flutist whose apartment smells of cigarettes, peppermint, and garlic entertains patrons of a nightclub with a man who uses this object, as those (\*) patrons cut up onions and cry. The rejection of his advances by a nurse whose finger he later finds in a field causes one man to resume using this object. A man stops using this object after Alfred is killed by Russians while swallowing a Nazi pin. A man who stopped growing at age three entertains soldiers both by using this object and by shattering glass with his voice. For 10 points, name this title object that Oskar Matzerath beats in a novel by Gunter Grass.

ANSWER: the tin drum [accept beating the tin drum or playing the tin drum]  
<JF, European Literature>

14. In a 1996 paper, Ravi Bansal and John Coleman argue that commercial banks use these assets to back checkable deposits, building off an earlier James Tobin work that cited the liquidity value of short-term types of these assets as helpful to banks in managing their reserve. Through a precursor to Ricardian equivalence, Robert Barro argued that these assets do not constitute net wealth. The preferred habitat hypothesis states that the market for these assets is segmented by (\*) term structure. Quantitative easing may involve central bank purchases of these assets to lower the interest rates on savings and loans. In the United States, Series EE and Series I types of these securities are issued by the Treasury. For 10 points, name these government-issued debt securities that are less risky than stocks.

ANSWER: government bonds [accept Treasury bonds or T-bonds; accept Series EE bonds or Patriot bonds; accept Series I bonds]  
<KJ, Social Science>

15. Signatures of these events include high values of two pixel statistics, the Gini coefficient  $G$  and  $M20$ . Animated simulations of these events were created to accompany a 1972 paper by Alar and Juri Toomre ("YOO-ree TOME-ray"). Monte-Carlo methods are used to construct history trees of these events, which are key to hierarchical formation models. "Peculiar" shapes like bridges and tails, as seen in the "Mice" and "Antennae" objects, are formed from (\*) tidal forces during these events. The compression of gas during these events can result in periods of rapid star formation called starbursts. "Close pairs" in the Sloan Digital Sky Survey are candidates for these events. Most elliptical galaxies are likely formed by, for 10 points, what events, one of which will occur between the Milky Way and Andromeda in 4.5 billion years?

ANSWER: galaxy mergers [or black hole mergers or dark matter halo mergers; accept galaxy collisions or galaxy interactions; accept galactic in place of galaxy; prompt on galaxy formation]  
<VD, Other Science: Astronomy>

16. This artist convinced his future pupil J. Laurie Wallace to model naked on a cross for his only religious painting. This artist painted a standing boy playing the double flute while a reclining one plays the pan flute in *Arcadia*. An advertisement for *The Ballet Girl* appears above a seated boxer resting in this artist's painting *Between Rounds*. This artist depicted a reclining nude inspired by *The Dying Gaul* next to a triumphant boy watching a friend dive into (\*) Dove Lake. A 2006 fundraiser kept a painting by this artist in Philadelphia; that painting depicts a woman recoiling in horror to a Jefferson Medical College professor performing surgery in an open room. For 10 points, name this American artist of *The Swimming Hole* and *The Gross Clinic*.

ANSWER: Thomas Eakins ("AY-kinz") [or Thomas Cowperthwait Eakins]

<ME, Visual Arts>

17. *Note to players: you may give the names of these characters or the name for them as a group. A description is also acceptable. After one of these characters suggests that the other try to “look like romance,” the other scoffs that he cannot do so because his partner has no teeth, then admits to giving her a hiding. While one of these characters reads a comic book, the other sings, “She was scandalizin’ my name.” One of these characters plays a Sarah Vaughan (“vawn”) song on a jukebox using his only bus fare. After being denied Abraham Lincoln, one of these characters chooses Alexander Fleming as his (\*) “Man of Magnitude.” These two characters ballroom dance together after their employer racially berates them to conceal his hatred for his disabled, abusive father, then reminds these characters that “you can’t fly kites on rainy days.” For 10 points, identify these two servants of “Master Harold” in a play by Athol Fugard.*

ANSWER: the boys [or Sam AND Willie; accept descriptions of Master Harold’s servants or Hally’s servants until “Master” is read]

<HG, World Literature>

18. **This element is added to the piperidine ring of the fentanyl derivative NFEPP (“N-fep”), which is designed to have a lower pKa and thus inhibits addictive opiate effects while maintaining analgesic effects. Electrophilic sources of this element include strong oxidants such as NFOBS (“N-fobs”) and NFSI (“N-F-S-I”) . A common method for protecting the *para* position of aromatic rings from oxidative metabolism involves addition of an atom to this element. Methyl groups with three atoms of this element are strong electron (\*) withdrawing groups. A carbon chain is studded with many atoms of this element in Teflon. A compound composed of this element bound to hydrogen is the weakest acid among HX acids and can be used to etch glass. For 10 points, name this lightest halogen.**

ANSWER: fluorine [or F; accept trifluoromethyl group]

<JZ, Chemistry>

19. **During this president’s administration, John McConnell and Denis Hayes began organizing teach-ins with backing from the UAW. A “fish-in” during this president’s tenure that protested the Sun Oil Company’s Platform Hillhouse capsized upon installation. This president’s Secretary of the Interior, Walter Hickel, tightened offshore drilling regulations following the Santa Barbara Oil Spill. Despite this president’s veto, Congress passed an act supported by Edmund (\*) Muskie establishing national air quality standards for various pollutants. Senators overrode this president’s veto of the Clean Water Act, a bill motivated by the Cuyahoga (“ky-uh-HO-guh”) River Fire. For 10 points, name this president who passed the Endangered Species Act and established the EPA.**

ANSWER: Richard Nixon [or Richard Milhous Nixon]

<KT, American History>

20. **In the preface to a collection of essays, this thinker argued that Ludwig Wittgenstein’s critique of private language has helped to close the gap between philosophy and anthropology. A book by this thinker argues against the conception of the title body as a “hydraulic bureaucracy” or a “oriental despotism,” instead identifying it as organized spectacle. One essay by this thinker analyzes how external colonial pressures and internal population pressure led to a namesake (\*) “agricultural involution.” This symbolic anthropologist describes how villagers he was staying with opened up to him after he fled a raid by ethnically Javanese police in an essay from *The Interpretation of Cultures*. For 10 points, name this thinker who used “thick description” to analyze social dynamics in *Notes on the Balinese Cockfight*.**

ANSWER: Clifford Geertz [or Clifford James Geertz] (The collection of essays in the first clue is *Available Light*, and the book in the second line is *Negara: the Theatre State in Nineteenth-Century Bali*.)

<MB, Social Science>

## Bonuses

1. Jessica Beshir's 2021 documentary *Faya Dayi* examines the ritual use of this substance in Harer, Ethiopia, where Allah legendarily gave it to the immortality-seeking emir Azurkherlaini ("ah-zoor-kur-LYE-nee"). For 10 points each:

[10h] Name this drug whose stimulatory effects enable many Muslims in the Horn of Africa and Yemen to pray for hours on end during Ramadan.

ANSWER: **qāt** ("kaht") [or **khat**; or **qaad**; or **ch'at**; or **jimaa**; or **gat**; accept *Catha edulis*]

[10e] In Harer, qāt is mainly used by members of this mystical sect of Islam to facilitate spiritual experiences and heighten their sense of union with Allah.

ANSWER: **Sufism** [or **Tasawwuf**]

[10m] Sufis in Harer commemorate this holiday by feeding hyenas porridge to receive prosperity. This holiday commemorating Husayn ibn 'Ali's martyrdom at the Battle of Karbala is particularly observed by Shia Muslims.

ANSWER: **Ashura**

<AS, Beliefs>

2. The Clenshaw–Curtis method for computing this operation substitutes "x equals cosine q." For 10 points each:

[10m] Name this operation. The Newton-Cotes method performs this operation by interpolating a function on evenly-spaced sample points and then computing a weighted sum of the function at those points.

ANSWER: numerical **integration** [or definite **integral**]

[10h] Newton-Cotes quadrature interpolates functions using *this* basis set, whose matrix equals the identity matrix when evaluated at the sample points. Each function in this polynomial basis is a product of terms of the following form: "x minus x-sub-j, over x-sub-i minus x-sub-j."

ANSWER: **Lagrange** basis [or **Lagrange** polynomials]

[10e] The simplest Newton-Cotes formula is this rule, which effectively averages the left and right Riemann sums. This rule approximates an integral by partitioning the area under a curve into its namesake quadrilaterals.

ANSWER: **trapezoidal** rule [accept **Tai**'s method]

<KJ, Other Science: Math>

3. While translating a section focused on this character, George Smith became so overcome with emotion that he spontaneously disrobed. For 10 points each:

[10m] Name this character, who tells a man to walk on the bottom of the sea and collect a plant that will allow him to regain his youth after describing an event that turns all mankind into clay.

ANSWER: **Utnapishtim**

[10e] Utnapishtim explains that he was granted immortality after surviving a divine flood to the title grieving king in this ancient Mesopotamian epic.

ANSWER: *Epic of **Gilgamesh***

[10h] The flood narrative in the *Epic of Gilgamesh* is largely consistent with that of this contemporaneous Akkadian epic, leading many scholars to conflate Utnapishtim with its title hero, whose name means "exceedingly wise."

ANSWER: *Epic of **Atra-Hasis***

<HG, World Literature>

4. This technique's "true" style involved workshop assistants making charcoal copies of original compositions called *sinopia* in sections intended to be finished in a "day's work" called *giornata*. For 10 points each:

[10e] Name this Renaissance technique of painting directly onto wet or dry plaster on a wall.

ANSWER: **frescoes** [accept buon **fresco**; accept **fresco** secco]



[10h] This figure splits a beam of light four ways during his apotheosis in a ceiling fresco painted by Andrea Pozzo. Baciccio (“bah-CHEE-cho”) created the *Triumph of the Name of Jesus* fresco for a church founded by this figure’s followers, which featured the first Baroque façade and is called *Il Gesù* (“JAY-zoo”).

ANSWER: St. **Ignatius** of Loyola [or Sant’**Ignazio**]

[10m] A depiction of Gabriel with multicolored wings approaches Mary from an enclosed garden in this artist’s oft-imitated *Annunciation* fresco, which was painted above cells in this artist-monk’s own monastery of San Marco.

ANSWER: **Fra Angelico** [or **Guido di Pietro**; or **Fra** Giovanni **Angelico**; or il **Beato Angelico**; accept **Fra Giovanni** da Fiesole]

<GE, Visual Arts>

5. The dissolution of one of these institutions founded in Ostend allowed for Great Britain and the Habsburgs to ally in the 1731 Treaty of Vienna. For 10 points each:

[10h] Name this type of institution. After establishing the Banque Générale (“bonk jay-nay-RAHL”) in France, a Scottish economist caused a massive bout of inflation in the country due to his reckless ownership of one of these institutions.

ANSWER: **joint-stock company** [accept **trading company**; accept **East India Company**; accept French **East India Company** or **Compagnie des Indes**; prompt on Ostend **Company**; prompt on **company**]

[10e] The dissolution of the Ostend Company was also a precondition for Great Britain to recognize this document, by which Charles VI (“the sixth”) outlined the Habsburg line of inheritance through his daughter, Maria Theresa.

ANSWER: **Pragmatic Sanction** of 1713

[10m] The alliance of Great Britain and the Habsburgs lasted through the War of the Austrian Succession, until Prince Kaunitz shifted to ally with France instead during a period given this term.

ANSWER: **Diplomatic Revolution** of 1756

<GP, European History>

6. The love between Shah Jahan and Mumtaz Mahal inspired Jacques Guerlain (“gair-LAN”) to create one of these products whose bottle resembles Indian fountains and is named for the Shalimar Gardens. For 10 points each:

[10e] Name these products that include Yves Saint Laurent’s Opium collection. Ernest Beaux created a type of this product called Chanel No. 5.

ANSWER: **perfume** [or **parfums**; accept eau de **toilette** or eau de **cologne**; accept **fragrances** or **scents** or **aromas**; prompt on **smells** or **odors**; prompt on **oils**]

[10h] This designer released Ombre Leather as a cheaper alternative to his Tuscan Leather perfume. This creator of the unigender Black Orchid scent revived Gucci as its Creative Director from 1994 to 2004.

ANSWER: Tom **Ford** [or Thomas Carlyle **Ford**]

[10m] The citrus, genderless “One” scent produced by this fashion house ushered in lighter scents of the 1990s. Richard Avedon controversially photographed Brooke Shields in this house’s line of tight jeans.

ANSWER: **Calvin Klein** [or **CK**]

<GE, Other Arts: Visual>

7. Sheng, one of these forms of language, has rapidly gained use in Nairobi to mark social identity and Kenyan-ness, partly due to its perception as cool for its use in local hip hop. For 10 points each:

[10e] Give this term for informal words, phrases, and usages. Linguists examine the use of this type of language in certain ingroups with data from Urban Dictionary.

ANSWER: **slang** [prompt on **colloquialisms** or **vernaculars** or **sociolects**; prompt on **cants** or **argots** or **cryptolects**]

[10m] Slang is often used within ingroups as it has high levels of the “covert” form of this sociolinguistic concept. Received Pronunciation is used in British education as it has a high level of this concept.

ANSWER: linguistic **prestige** [accept word forms like **prestigious**; accept covert **prestige** or overt **prestige**]

[10h] Slang also implies nonreferential meanings like social class from higher-order forms of this phenomenon. Deixis (“**DYKE-sis**”) is the referential form of this phenomenon, which involves context-based changes in meaning. ANSWER: **indexicality** [accept word forms like **indexicals** or **indices**; accept higher-order **indexicality**] <AS, Social Science>

8. Answer the following about the Seven Wonders of the Quantum World according to *New Scientist*, for 10 points each.

[10e] The quantum Zeno and anti-Zeno effects both involve repeated application of this process on a system, which causes the wavefunction to collapse to a single eigenstate. This process is akin to “opening Schrodinger’s box.”

ANSWER: **measurement** [accept **observation** or **watching**]

[10m] A charged particle moving through the outside of a solenoid will experience a phase shift, proving the physical reality of electromagnetic potentials, in an effect named for Aharonov and this physicist. This physicist also developed the pilot wave interpretation of quantum mechanics.

ANSWER: David **Bohm** [or David Joseph **Bohm**]

[10h] In a thought experiment by Elitzur and Vaidman, one of these objects can be cleverly tested with a particle in quantum superposition and a Mach-Zehnder interferometer, although that method only works 50% of the time.

ANSWER: **bombs**

<JF, Physics>

9. John Stark Bellamy II’s (“**the second’s**”) book *They Died Crawling* argues that a rescue mission using this invention during the 1916 Lake Erie crib disaster was ignored by mainstream media because of the inventor’s race. For 10 points each:

[10h] Name this invention created by the inventor of the traffic light, Garrett Morgan. A type of this invention was named for its black veil over a sponge or cotton pad.

ANSWER: **gas masks** [accept the Black Veil **Respirator**; accept **smoke hoods**; accept **safety hoods**; prompt on **masks**]

[10m] Morgan’s first inventions included a belt fastener and zigzag attachment for these devices. Elias Howe won a patent infringement case over a design for these machines that uses a rotary hook to make a “lock” design.

ANSWER: **sewing** machines

[10e] Morgan developed his gas mask after 146 garment workers died from smoke inhalation in this 1911 disaster in New York City.

ANSWER: **Triangle Shirtwaist** Factory fire

<GE, American History>

10. A Jennifer Chang poem declares, “[these objects] can go fuck themselves... I, too, have a big messy head / on a fragile stalk.” For 10 points each:

[10e] Name these objects, which are “Continuous as the stars that shine / And twinkle” in William Wordsworth’s poem “I Wandered Lonely as a Cloud.”

ANSWER: **daffodils** [prompt on **flowers**] (**The Chang poem is “Dorothy Wordsworth.”**)

[10h] This poet referenced Wordsworth’s “Ode: Intimations of Immortality” in a poem that begins, “Never for ever, for ever never.” This author mocked Coleridge in a poem that claims the Person from Porlock “had a cat named Flo.”

ANSWER: **Stevie Smith** [or Florence Margaret **Smith**; prompt on **Smith**] (**The Smith poem is “Thoughts about the Person from Porlock.”**)

[10m] The speaker examines their own “heady, sweaty arm” in this poet’s “Intimations of Mortality.” Dedé (“**day-DAY**”) is the only Mirabal sister who survives in this Dominican-American author’s novel *In the Time of the Butterflies*.

ANSWER: Julia **Alvarez**



<CM, British Literature>

11. In the 1870s, a manuscript of a mass by this composer was found in an Austrian grocer's home. For 10 points each:

[10h] Name this composer believed to have written the largest-known Baroque mass, the *Missa Salisburgensis*. A G-minor Passacaglia (“pah-suh-KAHL-yuh”) ends a set of sonatas by this composer that narrate the lives of Jesus and Mary.

ANSWER: Heinrich **Biber** [or Heinrich Ignaz Franz **Biber**]

[10m] The *Missa Salisburgensis* is scored for six choirs to take advantage of Salzburg Cathedral's acoustics, copying this city's polychoral style pioneered by Adrian Willaert (“VILL-art”) and Giovanni Gabrieli. Another composer from this city taught at the Ospedale della Pietà.

ANSWER: **Venice** [or **Venezia**]

[10e] This composer began an earlier 19th-century rediscovery after his grandmother gave him a score of J.S. Bach's *St. Matthew Passion*. He also composed incidental music for *A Midsummer Night's Dream*.

ANSWER: Felix **Mendelssohn** [or Jakob Ludwig Felix **Mendelssohn** Bartholdy]

<VD, Auditory Arts>

12. According to John Duns Scotus, all past attempts to establish the number of these entities err by either trying to establish their number exactly, or by begging the question. For 10 points each:

[10m] Name these entities, which can be the subject or the predicate of a proposition. An Aristotelian text titled for these things establishes a tenfold division of them.

ANSWER: **categories** [accept **categoriae** or **kategoriai**; accept **praedicamenta**]

[10e] This philosopher reduces the number of non-mental categories to three using his namesake razor, which implies that simple solutions tend to be best.

ANSWER: William of **Ockham** [accept **Ockham**'s razor]

[10h] This Salamanca school philosopher dealt with categories while exploring the division of genera into accidents in *Metaphysical Disputations*, which became the standard metaphysics textbook in Europe and Latin America for over a century.

ANSWER: Francisco **Suárez**

<MB, Philosophy>

13. Our head editor tried to clean Tide Pods and thus learned about laundry chemistry. For 10 points each:

[10e] The film of the pods is made of polyvinyl alcohol, allowing it to dissolve in contact with this universal solvent.

ANSWER: **water** [or **H<sub>2</sub>O**]

[10h] Manufacturers prevented him from eating the pods by adding a bitter denatonium (“DEE-nuh-tone-ium”) salt of this compound. Salts of this compound are common food preservatives that inhibit fermentation in microbes.

ANSWER: **benzoic acid** [or **benzoate**; accept denatonium **benzoate**; accept sodium **benzoate**; accept potassium **benzoate**]

[10m] He was dismayed when he found white “scum” on his clothes after washing. Soap scum forms when soap particles in detergent react with ions of calcium and this element in hard water.

ANSWER: **magnesium** [or **Mg**]

<GP, Chemistry>

14. Answer the following about comparisons between the French Revolution and British society, for 10 points each.

[10e] Richard Price compared the French Revolution to this event in a pamphlet titled *A Discourse on the Love of Our Country*. William and Mary codified parliamentary rights over the monarchy in the English Bill of Rights after deposing James II (“the second”) in this event.

ANSWER: **Glorious Revolution**

[10m] Price's pamphlet sparked a dissenting set of "reflections" from this thinker, who contrasted the "metaphysical abstraction" of the French Revolution with the "manly, moral, and regulated liberty" of the English Bill of Rights.

ANSWER: Edmund **Burke**

[10h] This writer unusually used prose style in an authoritative history of the French Revolution that compared the demands of the *sans-culottes* ("**sahn-koo-LOAT**") to those of the industrial English working class.

ANSWER: Thomas **Carlyle**

<GP, Other History: British>

15. This author is repeatedly analogized to Ti-Jean ("**tee zhan**") in a poem that repeats, "There is a garden in the memory of America." For 10 points each:

[10h] Name this author, the subject of a "canticle" set in Lowell, Massachusetts. This poet's warped perception of Buddhism is displayed in the long poem *Mexico City Blues*.

ANSWER: Jack **Kerouac** [or Jean-Louis Lebris de **K  rouac**]

[10e] Kerouac's muddled Buddhism also inspired his novel *The Dharma Bums*, which fictionalizes the Six Gallery reading of this long Allen Ginsberg poem beginning, "I saw the best minds of my generation destroyed by madness."

ANSWER: "**Howl**"

[10m] This poet of "Canticle of Jack Kerouac" attended the Six Gallery reading along with Kerouac. This poet described a "new rebirth of wonder" in his poem "I Am Waiting."

ANSWER: Lawrence **Ferlinghetti** [or Lawrence Monsanto **Ferlinghetti**]

<HG, American Literature>

16. Traditional Javanese *asta brata* philosophy contrasts Bapa Angkasa with Ibu Pertiwi, the personification of this substance. For 10 points each:

[10h] Name this substance governed by Prithvi, the consort of the Vedic god Dyaus ("**d'YOWSH**"). Varaha fights Hiranyaksha after he kidnaps a goddess of this substance whose manifestations include Krishna's wife Satyabhama.

ANSWER: **earth** [or **land** or **dirt** or **soil**; accept, but DO NOT REVEAL, Mother **Earth** or mother**land**]

[10e] The name of the Minangkabau Earth goddess, Bundo Kanduang, is also used as a title for the model example of these family members. The Bh  rat M  t   national personification of India is an example of these family members.

ANSWER: **mothers** [accept **Mother** Earth or **motherland**] ([The Minangkabau are the world's largest matrilineal society.](#))

[10m] In a Sunda folktale, the mother goddess Sunan Ambu transforms her prideful son into one of these animals. In the Cambodian epic *Reamker*, a mermaid falls in love with one of these animals as he builds a causeway to Lanka.

ANSWER: **monkeys** [accept **langurs** or **lutungs**; accept **Lutung** Kasarung; accept **monyet** or **sva**; prompt on **Hanuman** by asking, "What animal is Hanuman?"]

<AS, Beliefs>

17. Andrew Watson coined the name for an Arab "revolution" in this practice centered in medieval Iberia during the Islamic Golden Age. For 10 points each:

[10e] Name this practice aided by irrigation from *s  qiyyah* ("**SAH-kee-yuh**") and *noria* waterwheels. This practice was revolutionized in northern Europe by a switch from the two-field to the three-field system.

ANSWER: **agriculture** [or **farming**; accept answers like **growing** crops; accept **crop rotation**; accept "The Arab **Agricultural** Revolution and Its Diffusion"]

[10h] Agriculture in warm and arid al-Andalus was aided by the diffusion of this system of Persian underground aqueducts throughout the Muslim world.

ANSWER: **qan  t** [or **kariz**]

[10m] Under Arab rule, qan  t irrigation spread to this island that gives an epithet to Fatimid general Jawhar.

Centuries of Arab rule on this island were ended in the 11th century by Norman nobleman Roger I ("**the first**").

ANSWER: Sicily [or Sicilia; accept Jawhar the Sicilian]  
<DC, World History>

18. This city's Kirstenbosch ("KURR-sten-boss") National Botanical Garden is the first botanical garden in the world founded with the purpose of cultivating and preserving indigenous flora. For 10 points each:

[10m] Name this city. The critically endangered Peninsula Shale Renosterveld ("ruh-NO-ster-velt") vegetation is only found on Signal Hill and Devil's Peak in this city.

ANSWER: Cape Town [or Kaapstad or iKapa]

[10e] Cape Town's surroundings form the Cape Floristic Region, the world's smallest floral kingdom, which has extremely high levels of endemism and this property. Madagascar is one of thirty-six "hotspots" of this property.

ANSWER: biodiversity [accept word forms; accept biodiversity hotspots]

[10h] Kirstenbosch regularly features exhibits of plants from both of South Africa's unique biomes, like this semi-desert biome found north of the Great Escarpment.

ANSWER: karoo ("kuh-ROO-uh") [or !Aukarob; accept Succulent Karoo or Nama Karoo; accept Great Karoo or Little Karoo] (The other biome unique to South Africa is the fynbos, an extremely biodiverse shrubland.)

<AS, Geography>

19. This testing paradigm can determine the number of genes in a biochemical pathway. For 10 points each:

[10h] Name this testing paradigm in which two different homozygous recessive mutants are crossed, rescuing the wild-type phenotype if the genes are in the same pathway.

ANSWER: complementation testing [accept cis-trans testing; reject "complement" or "complement testing"]

[10m] Complementation testing fails for dominant negative mutations, which often affect proteins with this function. Mutant monomers of one protein with this function, which is normally a tetramer, form inactive dimers with wild-type monomers in Li-Fraumeni syndrome.

ANSWER: tumor suppressor proteins [accept TSGs; accept anti-oncogenes; accept tumor suppressor p53; prompt on other answers containing p53 by asking, "What is the function of p53?"; reject "oncogenes" or "proto-oncogenes"]

[10e] A spin on complementation testing involves fusing fragments of a reporter like GFP, which produces light by this process, to proteins postulated to interact. If they do, the fused fragments regain their ability to emit this signal.

ANSWER: fluorescence [accept word forms like fluorescent; accept bimolecular fluorescence complementation or green fluorescent protein; prompt on BiFC]

<HK, Biology>

20. In an essay collection structured as one of these works, Dubravka Ugrešić ("ooh-gruh-zich") reflects on being a "Couch Potato" while watching American news coverage of the Yugoslav Wars. For 10 points each:

[10h] Name this type of work. A Milorad Pavić novel titled for this type of work includes Red, Green, and Yellow books with Christian, Jewish, and Muslim interpretations of a dream.

ANSWER: dictionary [accept word forms; accept *American Fictionary* or *Dictionary of the Khazars*]

[10e] Bosnian Jozef Pronek learns about the Yugoslav Wars while living in this city in Aleksandar Hemon's *Nowhere Man*. This "City of the Big Shoulders" is the "Hog Butcher for the World" in a Carl Sandburg poem.

ANSWER: Chicago (The poem is "Chicago" by Carl Sandburg)

[10m] The "worlding" of Yugoslav literature was said to be exemplified by Ugrešić's novel about this kind of place "of Unconditional Surrender." Kemal makes Füsun's house this kind of place "of Innocence" in an Orhan Pamuk novel.

ANSWER: museums [accept *Museum of Unconditional Surrender* or *Museum of Innocence*] (Djelal Kadir coined "worlding" to refer to the globalization and cosmopolitanization of world literature, and Stijn Vervaet applied "worlding" to Yugoslav literature.)

<AS, European Literature>